National Park Service
U.S. Department of the Interior

Rocky Mountain National Park
Continental Divide Research Learning Center

Bighorn Sheep vs. Traffic

Volunteers on the Bighorn Brigade stop traffic to allow bighorn sheep to cross Highway 34 safely.

Bighorn sheep are altering their natural activity patterns to avoid road-related disturbances.

The Question: What effect does Highway 34 have on the Fall River band of Rocky Mountain bighorn sheep?

Rocky Mountain National Park is home to four bands of Rocky Mountain bighorn sheep. Individuals from of one of those bands, the Fall River band, often visit the Sheep Lakes mineral lick to replenish minerals lost during winter and in the rearing of lambs. To do so the sheep must descend Bighorn Mountain, move through dense timber stands and cross Highway 34. Once they have negotiated the traffic and arrived at the mineral lick, the sheep are exposed to coyote predation, and their escape route is cut off by the highway. Concern among park staff and visitors has raised questions about the effects of Highway 34 on the Fall River bighorn sheep.

The Project: Count crossing attempts and visitor numbers to determine the effect of traffic on bighorn sheep trying to get to the Sheep Lakes mineral lick.

Barbara Keller and Dr. Louis Bender from the New Mexico Cooperative Fish and Wildlife Research Unit and trained park volunteers observed Sheep Lakes from an unobtrusive position for 11 hours each day between May and September of 2002. Using spotting scopes and binoculars, the observers made records of sheep behavior and traffic patterns throughout the day. They analyzed the data to determine the effects of traffic on time and number of crossing attempts, the number of sheep attempting to cross, and the temporal patterns of sheep use of the mineral lick.

The Results: Sheep are altering their natural activity patterns to avoid road-related disturbances along Highway 34.

During the summer of 2002 researchers witnessed bighorn sheep visit Sheep Lakes 357 times. Sheep successfully crossed the road 91 times and failed six times. Sheep visitation was the highest in June with the highest numbers occurring on weekends and Tuesdays. The number of sheep using the mineral lick was negatively affected by the number of cars and people in the area. The sheep that did visit while human activity was higher required more time and more attempts to cross the road. Normally sheep would pursue such activities midday when predators are less active and visibility is better. However in apparent efforts to avoid humans, the sheep are visiting the mineral lick closer to dawn and dusk.

The level of human disturbance may be affecting the sheep's behavior to a point where they are more susceptible to disease and predation. It is possible that the sheep's decreased use of the Sheep Lakes mineral lick or the abandonment of the area altogether will have detrimental effects on the herd.

Additional work on the nutritional status of the Fall River band is underway. Travel routes in relation to vegetation cover are also being studied.

This summary is based on published, peer-reviewed and/or unpublished reports available at the time of writing. It is not intended as a statement of park policy or as a definitive account of research results.
For more information on the park's research program, see www.nps.gov/romo
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